

REMARKS

Claims 1-40 have been cancelled. Claims 41-67 have been added to show featured aspects of the invention. No new matter has been added with these amendments.

The Board of Appeal opinion did not address the issue of “picking and choosing” within each disclosure of Belli or Goehlich or Chan by the Examiner in rejecting the claims of the present application. The Examiner “picked and chose” from an infinite list of elements to show an “obvious to try” to one of ordinary skill in the art to show obviousness of the present invention.

Further, the Board of Appeal opinion depended on the Examiner’s Answer without verifying the various cited columns and lines provided by the Examiner. For example, the opinion cited as follows:

“Belli teaches that the outer conductor (6) may be a material formed as a cylindrical pipe (i.e., metallic tube) which can be longitudinally welded to the edges overlapped [(]Col. 4, lines 55-60), wherein the shield (6) may have an external conductor thickness of at least 0.2 mm and a diameter of 14.2 mm (Col. 10, lines 12-15.” (Ans.9) .

However, upon reading Belli, at col. 10, lines 12-15, nowhere can the description that the external conductor has a thickness of 0.2 mm and a diameter of 14.2 mm. .

Moreover, the Board of Appeals opinion did not address the issue that **Belli teaches away from the present invention**. Belli teaches the use of “FILLERS”. In contrast, the present application does not employ fillers. This is the main objective of the present application, i.e. avoid *FILLERS*.

The Board of Appeals did not address the obviousness of Claim 53. Applicants submit that the limitation of claim 53 which recited “the water penetration protective element has an absorption speed of about 15 ml/g per minute and an absorption capacity of more than 30 ml/g.” is unobvious over the cited prior art.

The rejection of the claims under 35 U.S.C. §103(a) should be withdrawn because the cited art does not suggest or motivate one of ordinary skill in the art to arrive at the claimed invention

At the outset, Applicants submit that the presently claimed invention is directed to

a dry, water resistant coaxial cable comprising:

a solid or hollow metal core conductor element (11);

a dielectric element around the core conductor based on three layers,
comprising:

a first layer (12) comprising a polymer mixed with an adhesive
component and applied onto the core conductor as a uniform film;

a second layer (13) comprising a cellular high expansion polymer
or a combination of cellular expansion polymer and swelling agent
on the first layer; said cellular expansion polymer made of low
dielectric coefficient polymer; and

optionally, a third layer (14) comprising a reinforcement layer on
the second layer; said third layer having the same characteristics as
the first layer;

a second external conductor (15) surrounding the dielectric element;

a second conductor element (16) on the second external conductor,
comprising a water penetration protective element to keep the cable dry;
said protective element based on one or more swellable fibers or tapes
applied helically, annularly or helicoidally; and

a protective cover (17) surrounding the second conductor element.

It is submitted that the **unobviousness of the present invention** over the
cited prior art are as follows:

- a) 1st and 3rd layers of the present invention contain an adhesive.
- b) The 2nd layer comprises a cellular high expansion polymer with a swelling agent;
- c) The unobvious configuration/design and structure of the layers of the dry, water resistant coaxial cable of the present invention.
- d) 2nd conductor comprises a water protective penetration element.
- e) core conductor comprises copper plated aluminum wire a cross section of 3.15 ± 0.3 mm diameter.
- f) diameter/thickness of protective cover; 2nd layer thickness; absorption speed and absorption capacity.

The Examiner maintained the rejection of Claims 11-13, 16-18, 20, and 23-25 under 35 U.S.C. §103(a) as being unpatentable over Chan et al. (US 5,486,648) in view of Goehlich (U.S. Patent 6,784,371).

Chan et al. (U.S. 5,486,648) discloses a cable, as follows:

- a) conductor (1);
- b) semiconductive shield (2);
- c) insulation layer (3);
- d) insulation shield (4);
- e) water swellable yarn (5);
- f) concentric neutral wires (6) –*distributed around the water swellable yarn*;
- g) encapsulating jacket (7).

There is **no disclosure or suggestion regarding dry, water resistant** coaxial cable in Chan et al. The Examiner alleged on page 4 of Examiner's Answer, item C as follows:

...“Chan discloses a **dry, water resistant coaxial cable** (Figs 1-8) which provides improved protection against migration of water....
Chan discloses a cable (Fig.3) comprising a metal conductor element (11), a dielectric element (2-4) around core conductor (11) which is based on three layers: comprising a **polymer mixed with an adhesive component**...

The Examiner alleged on page 6, first full paragraph of Examiner's Answer as follows:

“...However, Chan **doesn't necessarily disclose the first layer comprising an adhesive** (claim 11) nor the adhesive being selected from the group of vinyl adhesive, acrylic adhesive and combination thereof (claim 23), nor the adhesive being selected from the group consisting of ethylene acrylate acid, ethylene vinyl acid, and combinations thereof (claim 20) nor the absorption speed being 15 mg/g/min nor the absorption capacity of more than 30 ml/g (Claim 24)....”

The Examiner Answer was **inconsistent** with respect to the disclosure of Chan. First, Chan discloses a polymer with an adhesive component and second, Chan does **not** disclose a polymer with an adhesive. The Examiner Answer was replete with inconsistencies.

It is submitted that there is **no** disclosure or suggestion in Chan regarding a polymer with an adhesive component. Moreover, there is no disclosure or suggestion regarding the absorption capacity of more than 30 ml/g nor the absorption speed of 15 mg/g/min.

In *In re Aller*, 105 USPQ 233 (CCPA 1955), the Court set out the rule that the discovery of an optimum value of a variable in a known process is normally obvious. However, Courts held that there are **exceptions** to this rule in cases where the results of optimizing a variable which was known to be result effective, were unexpectedly good. See *In re Wymouth*, 182 USPQ 290 (CCPA 1974); *In re Saether*, 181 USPQ 36 (CCPA 1974). Further, the court in *In re Antoine*, 195 USPQ 6 (CCPA 1977) pointed out that another exception is one in which the parameter optimized was ***not recognized*** to be a result effective variable. It further stated that §103 directs attention to the invention "as a whole" which includes not only to the subject matter which is literally recited in the claim in question but also those properties of the subject matter *and* are disclosed in the specification.

In this case, the question "as a whole" are the absorption speed and absorption capacity, diameter/thickness of protective cover, external conductor thickness and diameter on the pipe, core conductor cross section diameter, diameter of reinforcement layer and their inherent properties. These properties are configured/designed with the structure of the dry, water resistant coaxial cable which does not use a filler but incorporated a water protection penetration element. This property permits Applicants to prepare and connect the coaxial cable *without using solvents and other cleaning agents*. Thus, it is submitted that it is the invention "as a whole" and not some part of it must be obvious under 35 USC 103.

The issue is whether the differences between the parameters of the prior art and the parameters of the Applicants' invention "as a whole" are such that the Applicants' invention "as a whole" would have been obvious. It is submitted that it would **not** have been obvious. There is no disclosure or suggestion in Chan et al, Goehlich et al. or Belli et al. to recognize the absorption speed or absorption capacity, diameter/thickness of protective cover, external conductor thickness and diameter on the pipe, diameter of reinforcement layer of the Applicants' invention when a) Chan et al. **avoids** the use of

adhesive. Rather Chan et al. use concentric neutral wires (CN) distributed around the water swellable polymer; b) Belli et al. use *fillers* which is the opposite objective of present invention –avoids the use of fillers; c) Goehlich et al. is directed to detecting water intrusion in a simple cable comprising an inner sheath, an outer sheath and a sensor. It is submitted that recognizing the different cable configuration/design is essential to the unobviousness of the presently claimed invention.

The Examiner refers to the concentric neutral wires (CN) as the 2nd conductor in the presently claimed invention. However, the CN wires in Chan et al. do not contain a water penetration protective element. Moreover, the CN wires stand **alone** because they are used as a metallic ground shield. In addition, all of the CN wires are distributed around the water swellable yarn. See Figure 2 The CN is interwoven on the insulation shield.

Next, the water swellable yarn of Chan et al. is **non-conductive**. It criss-crosses the CN wires and helically wound around the insulation shield (4). The lay of the water swellable yarn is opposite that of the CN wires.

There is no disclosure or suggestion in Chan et al. regarding a dry, water resistant coaxial cable which comprises a 1st and 3rd layer containing an adhesive.

In order to overcome the adhesive deficiency of Chan et al., the Examiner combined Chan et al. with Goehlich et al.

A “structured material” is incorporated between the inner cable sheath and outer cable sheath. The definition of “structured material” is broadly disclosed in col. 4, lines 25-35. It can be a “swellable material” or adhesive layer or sealing material. The Examiner alleged that one of ordinary skill in the art can “pick and choose” a specific adhesive from a plethora or infinite list of various “**structured material**” disclosed in Goehlich. The Examples and claims of Goehlich et al. employ the use of sputtered adhesive and sealing material. The primary object of Goehlich et al. is to provide a cable for detecting water in interstices between outer sheath and inner sheath. Note col. 3, lines 8-11. It is a monitoring system for measurement accuracy and lifetime of the cable.

The Examiner alleged that an adhesive component may be selected from the various polymer listed above. From the above broad disclosure of polymers which can be

used as “structured material,” it is submitted that one of ordinary skill in the art does not have any *guidance or direction* on which polymer from Goehlich et al. may be incorporated in Chan et al. to obtain a modified cable which will provide the properties similar to the Applicants’ presently claimed dry, water resistant coaxial cable.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 USPQ 2d (Fed. Cir. 1990).

There is no disclosure or suggestion in Goehlich et al. regarding “picking and choosing”, e.g., pick a specific adhesive, as employed in the presently claimed invention and choose the specific adhesive from a plethora of various polymers in Goehlich et al. and incorporate the chosen specific adhesive in Chan et al. Rather, Chan et al. employ concentric neutral wires (CN) distributed around the water swellable yarn to provide the necessary shield.

The Examiner further used Belli et al. to show that a swelling agent can be employed to modify the cable of Chan et al. Belli discloses **an electrical cable for high or medium voltage power transmission**.

The Applicants’ invention is directed to dry, water resistant coaxial cable. Coaxial cables are different from electrical cables. Coaxial cables are for electronic or video use, data transmission, analog or digital, television transmission, internet signal transmission, carry broad band, and high frequency signals. Applicants submit that the presently claimed invention is different and unobvious from that of Belli et al.

The Examiner alleged that it would be obvious to modify Chan et al. with the swelling agent of Belli et al. However, Applicants question how one of ordinary skill in the art would modify the cable of Chan upon reading the disclosure of Belli et al. which disclose an expanded layer (5) which is **semi-conductive**. Belli et al. adds carbon black to the expanded layer. See **Example 3** of Belli et al.

In contrast, Chan et al.’s water swellable yarn is **non-conductive**. Moreover, Chan et al. provide the use of concentric neutral wires (CN) which are distributed around the water swellable yarn. There is no disclosure or suggestion to one of ordinary skill in the art to combine the swelling agent of Belli et al. with the swellable yarn of Chan et al. because CN wires are distributed around the water swellable yarn. Moreover, the

swellable yarn is **non-conductive** while Belli et al's expanded layer is **semi-conductive**.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

Similarly, in the present case, the expanded layer of Bell et al. is **semiconductive** while the water swellable yarn of Chan et al. is **non-conductive**. Chan et al. employ concentric neutral wires distributed around the water swellable yarn while Belli et al. employ carbon black and swelling agent on the expanded layer. One of ordinary skill in the art confronted with the problem will not incorporate the swelling agent in the water swellable yarn which contain concentric neutral wires distributed around it because this combination would require a substantial reconstruction and design of the elements.

Even assuming *arguendo* that Chan et al is properly combinable with Belli et al., it is submitted that Belli et al. provide a broad infinite list of expanded layers at cols.5-6. This issue was not addressed by the Board of Appeals opinion either.

Upon reading Belli et al., one of ordinary skill in the art is confronted with various polymers, polymer components, or any type of polymers in the preparation of expanded polymers. Similarly, Belli et al. disclose a BROAD range of polymers for use as expandable polymer.

Applicants submit that of the above list of polymers, the Examiner's assertion that it would be obvious to one of ordinary skill in the art to "**pick and choose**" a specific polymer from a long list of disclosed polymer is erroneous.

Moreover, the Examiner's assertion that it would be obvious to "pick and choose" an adhesive, more particularly ethylene acrylate from the plethora of various polymers disclosed in Goehlich et al. is without support.

This would have required one of ordinary skill in the art to randomly or arbitrarily "pick and choose" among a number of different polymers, a plurality of ingredients such as blowing agents, fillers, photoinitiators, surfactants, a range of radiation polymerization conditions and characteristics. *In re Arkley*, 172 USPQ 524 (CCPA 1972).

The Examples did not provide any information or guidance which polymer or group of polymer components, one of ordinary skill in the art would "pick and choose"

from a list of polymers. None of the polymers listed above provides the use of ethylene acrylate as an adhesive in Belli et al.

It is submitted that the Examiner's rejection falls short of what is necessary for an obviousness rejection. It has been found that a broad disclosure failed to constitute a description of a specific claimed compound. It has been subsequently stated that without specific direction, a general disclosure will not be sufficient to support an obviousness rejection. *In re Ahlbrecht*, 168 USPQ 293 (CCPA 1971)

One of ordinary skill in the art, wouldn't randomly or arbitrarily pick a specific swelling layer employed by the present invention and accomplish the necessary results achieved by the Applicants.

Thus, the Examiner used Goehlich et al. or Belli et al. "as a template to **pick and choose**" among several infinite variety of polymers to demonstrate obviousness of the claims. By "picking and choosing", one can thus find all the limitations, but the specification provides no direction, let alone "full, clear, concise and exact" direction required to the claimed combination. The same "picking and choosing" is required in order to arrive at all the claimed combinations. When one has to "pick and choose" among a wide variety of polymers, structured materials, tapes, self adhesive, sealing agents, the subject matter of the claimed invention has not been described as required by the statute. Possession of the subject matter at the time of the invention has not been demonstrated. One of ordinary skill in the art would have to "pick and choose" through Goehlich et al. or Belli et al.'s specification in order to find the "claimed limitation."

It is impermissible to "**pick and choose**" from any one of the reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *In re Wesslau*, 147 USPQ 391 (CCPA 1965).

Measuring a claimed invention against the standard established by §103 requires the oft-difficult but critical step of casting the mind back to the time of the invention to consider the thinking of one of ordinary skill in the art guided only by prior art references and then accepted wisdom in the field. We can not use hindsight reconstruction to "**pick and choose**" among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 5 USPQ 2d 1780 (Fed. Cir. 1988).

Design is a critical element of the present invention. The Applicants have developed a dry, water resistant coaxial cable which does not use fillers.

From the above, the Examiner has not shown the motivation to “choose/select” a) ethylene acrylate as an adhesive; or b) swelling agent from a multitude of polymers, combination of multitude of polymers disclosed in Goehlich et al. or Belli et al.

Further, the ability of one of ordinary skill in the art to prepare a swellable polymer *does not* lead the artisan to achieve the presently claimed cable because there are several factors to be considered, e.g., manipulation of the layering/configuration, design of different polymer layers; addition of adhesives to 1st and 3rd layers, addition of swelling agent on 2nd layer; the 2nd conductor element containing the water protection element, absorption capacity, absorption speed, diameter or thickness of different layers.

Moreover, the claims at issue recite specific combinations of characteristics/properties which were not addressed by the Examiner. Rather, the Examiner attempted a “broad conclusory statements ” regarding the teaching of Belli et al. and Goehlich et al. **Broad conclusory statements, standing alone are not evidence, *In re Dembiczek*, 50 USPQ 2d 1614 (Fed. Cir. 1999) at 1617.**

From the above, Applicants submit that the Examiner has not presented sufficient argument or reasoning to establish a *prima facie* case of obviousness. Applicants request the reversal of Examiner’s action in rejection claims 11-13, 16-18, 20 and 23-25 and allowance thereof are respectfully requested.

Respectfully submitted,



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